Commonwealth of Kentucky
Division for Air Quality

STATEMENT OF BASIS / SUMMARY

Conditional Major, Operating
Permit: F-20-046
Toyota Boshoku Kentucky LLC – Lebanon Plant
200 Francis Marion Drive
Lebanon, KY 40033
April 16, 2021
Elise Venard, Reviewer

SOURCE ID:	21-155-00033
AGENCY INTEREST:	35886
ACTIVITY:	APE20200001

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SECTION 1 – SOURCE DESCRIPTION

SIC Code and description: 2396, Automotive Trimmings, Apparel Findings, and Related Products (textile motor vehicle trimming except contractors)

Single Source Det. ☐ Yes ☒ No If Yes, Affiliated Source AI:

Source-wide Limit ☒ Yes ☐ No If Yes, See Section 4, Table A

28 Source Category ☐ Yes ☒ No If Yes, Category:

County: Marion
Nonattainment Area ☒ N/A ☐ PM_{10} ☐ $PM_{2.5}$ ☐ CO ☐ NO_X ☐ SO_2 ☐ Ozone ☐ Lead
If yes, list Classification:

PTE* greater than 100 tpy for any criteria air pollutant ☒ Yes ☐ No
If yes, for what pollutant(s)?
☐ PM_{10} ☐ $PM_{2.5}$ ☐ CO ☐ NO_X ☐ SO_2 ☒ VOC

PTE* greater than 250 tpy for any criteria air pollutant ☐ Yes ☒ No
If yes, for what pollutant(s)?
☐ PM_{10} ☐ $PM_{2.5}$ ☐ CO ☐ NO_X ☐ SO_2 ☐ VOC

PTE* greater than 10 tpy for any single hazardous air pollutant (HAP) ☐ Yes ☒ No
If yes, list which pollutant(s):

PTE* greater than 25 tpy for combined HAP ☐ Yes ☒ No

*PTE does not include self-imposed emission limitations.

Description of Facility:

Toyota Boshoku Kentucky LLC - Lebanon Plant (TBKY) manufactures interior trim for automobiles including trim, armrests, headliners, and ornaments.

SECTION 2 – CURRENT APPLICATION AND EMISSION SUMMARY FORM

Permit Number: F-20-046 Activities: APE20200001

Received: November 21, 2020 Application Complete Date(s): December 4, 2020

Permit Action: ☐ Initial ☒ Renewal ☐ Significant Rev ☐ Minor Rev ☐ Administrative

Construction/Modification Requested? ☐Yes ☒No

Previous 502(b)(10) or Off-Permit Changes incorporated with this permit action ☒Yes ☐No

APE20210001. On 12/28/2020 Toyota Boshoku Kentucky LLC - Lebanon Plant submitted an application to modify:
Emission Unit 06 (EP14) Highlander 550B – Line 1 (Ornaments and Armrest Covers).

- Add one robotic HVLP spray gun to each of the two existing robotic spray booths,
- Add one manual spray booth with two manual HVLP spray guns,
- EP14 has a total of four robotic spray guns and four manual spray guns.

Emission Unit 07 (EP15) Highlander 550B – Line 2 (Ornaments and Armrest Covers)

- Add one robotic HVLP spray gun to each of the two existing robotic spray booths,
- EP14 has a total of four robotic spray guns and two manual spray guns.

Description of Action:

APE20200001.
On 11/21/2020 the Division received an application for renewal of their Conditional Major permit.

F-20-046 Emission Summary		
Pollutant	2019 Actual (tpy)	PTE F-20-046 (tpy)
CO	0.98	6.99
NOx	1.42	14.56
PT	2.41	19.95
PM_{10}	2.41	21.17
$PM_{2.5}$	2.32	18.84
SO_2	0.00	0.58
VOC	7.25	184.28
Lead	0.00	0
Greenhouse Gases (GHGs)		
Carbon Dioxide	1716.70	7726.11
Methane	0.03	0.14
Nitrous Oxide	0.04	0.13
CO_2 Equivalent (CO_2e)	1717.01	7770.17
Hazardous Air Pollutants (HAPs)		
Methanol	0.27	7.66
Combined HAPs:	0.27	7.92

SECTION 3 – EMISSIONS, LIMITATIONS AND BASIS

Emission Unit 03 (EP10) Latex Adhesive Spray Booth #3 (Silencer Operations)
Emission Unit 06 (EP14) Highlander 550B – Line 1 (Ornaments and Armrest Covers)
Emission Unit 07 (EP15) Highlander 550B – Line 2 (Ornaments and Armrest Covers)

Pollutant	Emission Limit or Standard	Regulatory Basis for Emission Limit or Standard	Emission Factor Used and Basis	Compliance Method
VOC	Source wide 90 tpy	To preclude 401 KAR 52:020	Material Balance & SDS	Monthly emission calculations and a new rolling 12-month total
PM	2.34 lbs./hr.	401 KAR 59:010, Section 3(2)	Material Balance & SDS with 80% Transfer Efficiency	Dry Filters, 90% C.E., Manufacturer's guarantee
PM	20 percent opacity	401 KAR 59:010, Section 3(1)a	N/A	Recordkeeping of weekly visual observations

Initial Construction/Modification and Date: 2/4/2008, 3/2019 / 1/2021, 3/2019 / 1/2021

Process Description:

Foam pieces are shaped and brought to be coated with fabric adhesives.

Applicable Regulation:

401 KAR 59:010**,** *New process operations*

401 KAR 63:020**,** *Potentially hazardous matter or toxic substances,* applies to EU06 and EU07.

Precluded Regulations:

401 KAR 59:225, *New miscellaneous metal parts and products surface coating operations.*

Comments:

Emission Unit 03 (EP10) Latex Adhesive Spray Booth #3 (Silencer Operations).
Materials applied: Latex adhesive onto fabric and molded silencer parts.
Transfer efficiency: 80%
The booth equipped with corrugated paper filter with an estimated efficiency of 90% for the control of particulate matter.
There are no controls for Volatile Organic Compound emissions (VOC).
Applicator capacity is 6.328gals/hr. Water is used as clean-up solvent. Emissions enter the ambient air through a designated stack.

Emission Unit 06 (EP14) Highlander 550B – Line 1 (Ornaments and Armrest Covers)
Materials applied: Adhesive onto ornament substrates and armrest covers.
The adhesive sprayed is cured in an electric curing oven.
There are 8 HVLP spray guns total in this line. 4 manual spray guns and 4 robotic spray guns (2 spray guns in each of the two robotic applicators).
Transfer efficiency: 80%
This booth utilizes a corrugated paper filter with an estimated efficiency of 90% for the control of particulate matter.

Emission Unit 03 (EP10) Latex Adhesive Spray Booth #3 (Silencer Operations)
Emission Unit 06 (EP14) Highlander 550B – Line 1 (Ornaments and Armrest Covers)
Emission Unit 07 (EP15) Highlander 550B – Line 2 (Ornaments and Armrest Covers)

Electric oven is capable of producing one vehicle's worth of ornaments or armrest covers every 57.6 seconds.

Emission Unit 07 (EP15) Highlander 550B – Line 2 (Ornaments and Armrest Covers)
Materials applied: Adhesive onto ornament substrates and armrest covers
The adhesive sprayed is cured in an electric curing oven.
There are 6 HVLP spray guns total in this line. 2 manual spray guns in 1 booth and 4 robotic spray guns (2 spray guns in each of the two robotic applicators).
Transfer efficiency: 80%
This booth utilizes a corrugated paper filter with an estimated efficiency of 90% for the control of particulate matter.
Electric oven is capable of producing one vehicle's worth of ornaments or armrest covers every 57.6 seconds.

401 KAR 59:225, *New miscellaneous metal parts and products surface coating operations.* To preclude the applicability of this regulation, the source has voluntarily accepted a facility-wide VOC emissions (including insignificant activities and combustion units) limit of 90 tons per rolling 12-month period. Compliance with this allowable will be demonstrated by record keeping and emissions estimating methodology specified in the terms and conditions of the permit.

The application of adhesive on the surface of the ornaments and armrest covers have a bottleneck at the oven. As such, the potential to emit from the spray guns are limited by the number of parts that can be produced. Each line has its own electric oven for a total of two ovens. Each oven is capable of producing one vehicle's worth of ornaments or armrest covers every 57.6 seconds. For the purpose of potential to emit calculations, only ornaments were assumed to be made since they require more adhesive. In addition to the bottleneck consideration, SDS and material balance information were used to estimate emissions. Bottleneck: One vehicle set of two front ornament substrates and two rear ornament substrates can be made every 57.6 seconds. Maximum production is 547,500 vehicles/year for the Ornamental Substrate, 1,095,000 vehicles/year for Side A, Side B Adhesive, and Ornamental Skin.

Emission Unit 04 (EP11 and EP12) Mat line #1 and #2

Pollutant	Emission Limit or Standard	Regulatory Basis for Emission Limit or Standard	Emission Factor Used and Basis	Compliance Method
PM	2.34 lbs./hr.	401 KAR 59:010, Section 3(2)	Engineering Estimate & SDS	Rotary pre-filter, 60 % C.E; Baghouse, 97% C.E., Manufacturer's guarantee
PM	20 percent opacity	401 KAR 59:010, Section 3(1)a	N/A	Recordkeeping of weekly visual observations

Initial Construction Date: 11/30/2007, 3/30/2007

Process Description:

The process flow of the mat lines combines four different materials to produce the silencer blanks. A fabric

Emission Unit 04 (EP11 and EP12) Mat line #1 and #2

grinder breaks down materials and a mixture is stored in its designated tower compartment. It then goes through Finish Opener line to the Web Former where it is formed into one solid sheet. An oven activates the binder, which makes the final product rigid. It is then cut to the required length for final assembly.

Applicable Regulation:

401 KAR 59:010, *New process operations*

Comments:

Emission Unit 04 (EP11 and EP12) Mat line #1 and #2:
Each line has a pre-filter of 60% efficiency and a baghouse of 97% efficiency.

Emission Unit 05 (EP13) Emergency Diesel Fire Pump

Initial Construction Date: 11/2013

Process Description:

Emergency diesel RICE used for pumping water during a fire emergency.

Applicable Regulation:

401 KAR 63:002 Section 2(4)(eeee), 40 C.F.R. 63.6580 to 63.6675, Tables 1a to 8, and Appendix A (Subpart ZZZZ), *National Emission Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines*

401 KAR 60:005 Section 2(2)(dddd), 40 C.F.R. 60.4200 to 60.4219, Tables 1 to 8 (Subpart IIII), *Standards of Performance for Stationary Compression Ignition Internal Combustion Engines*

Comments:

Power Output: 62 HP
Displacement: 4.5L
Manufacturing date: September 2013
Construction Date: November 2013

SECTION 3 – EMISSIONS, LIMITATIONS AND BASIS (CONTINUED)

Testing Requirements\Results

N/A

SECTION 4 – SOURCE INFORMATION AND REQUIREMENTS

Table A - Group Requirements:

Emission and Operating Limit	Regulation	Emission Unit
90 tpy of VOC emissions	401 KAR 52:030	Source-wide

Table B - Summary of Applicable Regulations:

Applicable Regulations	Emission Unit
401 KAR 59:010, *New process operations*	EU 03, 04, 06, 07
401 KAR 63:020, *Potentially hazardous matter or toxic substances*	EU 06, 07
401 KAR 63:002 Section 2(4)(eeee), 40 C.F.R. 63.6580 to 63.6675, Tables 1a to 8, and Appendix A (Subpart ZZZZ) *National Emission Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines.*	EU 05
40 CFR 63, Subpart IIII, *Standards of Performance for Stationary Compression Ignition Internal Combustion Engines*	EU 05

Table C - Summary of Precluded Regulations:

Precluded Regulations	Emission Unit
401 KAR 52:020, *Title V permits*.	Source-wide

Table D - Summary of Non Applicable Regulations:

Non Applicable Regulations	Emission Unit
N/A	

Air Toxic Analysis

401 KAR 63:020, *Potentially Hazardous Matter or Toxic Substances*
The Division for Air Quality (Division) has performed AERMOD on June 18, 2019 of potentially hazardous matter or toxic substances (Cyclohexane, Ethyl Acetate, N-Heptane, Methanol) that may be emitted by the facility based upon the process rates, material formulations, stack heights and other pertinent information provided by the applicant. Based upon this information, the Division has determined that the conditions outlined in this permit will assure compliance with the requirements of 401 KAR 63:020.

Single Source Determination

N/A

SECTION 5 – PERMITTING HISTORY

Permit	Permit type	Activity#	Complete Date	Issuance Date	Summary of Action	PSD/Syn Minor
F-05-048	Initial	APE20050001	11/16/2005	3/14/2006	Initial Permit	N/A
F-10-050	Renewal	APE20100001	1/12/2011	5/20/2011	Renewal Permit	N/A
F-10-050 R1	Revision	APE20110001	11/23/2011	11/29/2011	Administrative Amendment; Name change of Company	N/A
F-10-050 R2	Minor Revision	APE20140001	10/19/2014	12/17/2014	Addition of emergency fire pump and IA	N/A
F-16-008	Renewal	APE20150001	1/29/2016	5/27/2016	Renewal Permit	N/A
F-16-008 R1	Minor Revision	APE20190001	3/15/2019	8/18/2019	Addition of EP14 and EP15 Adhesive Coating Lines	N/A

SECTION 6 – PERMIT APPLICATION HISTORY

N/A

APPENDIX A – ABBREVIATIONS AND ACRONYMS

AAQS – Ambient Air Quality Standards
BACT – Best Available Control Technology
Btu – British thermal unit
CAM – Compliance Assurance Monitoring
CO – Carbon Monoxide
Division – Kentucky Division for Air Quality
ESP – Electrostatic Precipitator
GHG – Greenhouse Gas
HAP – Hazardous Air Pollutant
HF – Hydrogen Fluoride (Gaseous)
MSDS – Material Safety Data Sheets
mmHg – Millimeter of mercury column height
NAAQS – National Ambient Air Quality Standards
NESHAP – National Emissions Standards for Hazardous Air Pollutants
NO_x – Nitrogen Oxides
NSR – New Source Review
PM – Particulate Matter
PM_{10} – Particulate Matter equal to or smaller than 10 micrometers
$PM_{2.5}$ – Particulate Matter equal to or smaller than 2.5 micrometers
PSD – Prevention of Significant Deterioration
PTE – Potential to Emit
SO_2 – Sulfur Dioxide
TF – Total Fluoride (Particulate & Gaseous)
VOC – Volatile Organic Compounds